

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-29 (Canceled)

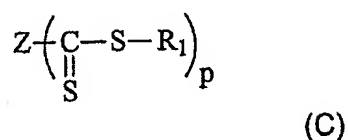
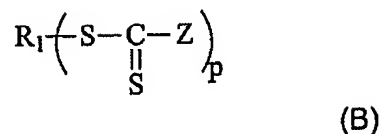
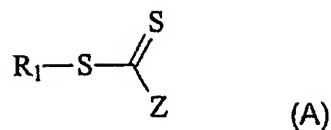
30. (New) A process for partially or completely oxidizing one or more thiocarbonylthio ends of a polymer resulting from a radical polymerization controlled by reversible addition-fragmentation using thiocarbonylthio comprising the step of bringing said polymer into contact with an ozone-comprising gas, and reacting the ozone with the thiocarbonylthio end or ends.

31. (New) The process as claimed in claim 30, wherein the ozone-comprising gas is air, helium, oxygen, argon, carbon dioxide, nitrogen or a mixture thereof.

32. (New) The process as claimed in claim 30, wherein the ozone-comprising gas comprises from about 0.01% by weight to about 8% by weight of ozone, with respect to the total weight of gases.

33. (New) The process as claimed in claim 30, wherein the ozone has a molar ratio to the thiocarbonylthio of between about 10 000:1 and about 1:100, optionally, between about 100:1 and about 1:1.

34. (New) The process as claimed in claim 30, wherein the thiocarbonylthio compound is a compound of following formula (A), (B) or (C):



wherein:

Z represents:

a hydrogen atom,

a chlorine atom,

an optionally substituted alkyl radical or an optionally substituted aryl radical,

an optionally substituted heterocycle,

an optionally substituted alkylthio radical,

an optionally substituted arylthio radical,

an optionally substituted alkoxy radical,

an optionally substituted aryloxy radical,

an optionally substituted amino radical,

an optionally substituted hydrazine radical,

an optionally substituted alkoxycarbonyl radical,

an optionally substituted aryloxycarbonyl radical,

a carboxyl or optionally substituted acyloxy radical,
an optionally substituted aroyloxy radical,
an optionally substituted carbamoyl radical,
a cyano radical,
a dialkyl- or diaryl-phosphonato radical,
a dialkyl-phosphinato or diaryl-phosphinato radical, or
a polymer chain,

R₁ represents:

an optionally substituted alkyl, acyl, aryl, aralkyl, alkenyl or alkynyl group,
an optionally substituted, aromatic, saturated or unsaturated, carbon ring or
heterocycle, or
a polymer chain, and

p represents a number between 2 and 10.

35. (New) The process as claimed in claim 34, wherein the thiocarbonylthio compounds are xanthate, dithiocarbamate, dithioester, dithiocarbazate or trithiocarbonate compounds.
36. (New) The process as claimed in claim 30, wherein the polymer comprises from about 0.01% to about 35% by weight of thiocarbonylthio before contact with the ozone-comprising gas.
37. (New) The process as claimed in claim 30, wherein the polymer comprises from about 80% to 0% by weight of thiocarbonylthio with respect to the initial weight of thiocarbonylthio after contact with the ozone-comprising gas.

38. (New) The process as claimed in claim 30, wherein the polymer is a homopolymer or a copolymer of ethylenically unsaturated monomer(s).
39. (New) The process as claimed in claim 38, wherein the ethylenically unsaturated monomers are monoethylenically unsaturated monomers selected from from styrene, α -methylstyrene, vinyltoluene, as vinyl acetate, vinyl Versatate®, vinyl propionate, vinyl halide, vinylidene halide, acrylic acid, methacrylic acid, itaconic acid, maleic acid, fumaric acid, acrylamide, methacrylamide, N-methylolacrylamide, N-methylolmethacrylamide or N-alkylacrylamides, vinylsulfonic acid, vinylbenzenesulfonic acid, α -acrylamidomethylpropanesulfonic acid, 2-sulfoethylene methacrylate, vinylformamide, vinylacetamide, N-vinylpyrrolidone, N-vinylcaprolactam, vinylpyridines, vinylimidazole, dimethylaminoethyl acrylate, dimethylaminoethyl methacrylate, di(tert-butyl)aminoethyl acrylate, di(tert-butyl)-aminoethyl methacrylate, dimethylaminomethylacrylamide, dimethylaminomethylmethacrylamide, sulfopropyl(dimethyl)aminopropyl acrylate, glycidyl acrylate, glycidyl methacrylate, acryloylbenzeneboronic acid, methacryloylbenzeneboronic acid, 4-vinylbenzeneboronic acid, 3-acrylamidophenylboronic acid, 3-methacrylamidophenylboronic acid, N-methacrylamidomethylphosphonic diacid; N-methacrylamidoethylphosphonic acid dimethyl ester, N-methacrylamidoethylphosphonic acid di(2-butyl-3,3-dimethyl) ester, N-methacrylamidoethylphosphonic diacid; N-acrylamidomethylphosphonic acid dimethyl ester, N-acrylamidomethylphosphonic acid diethyl ester, bis(2-chloropropyl) N-acrylamidomethylphosphonate, N-acrylamidomethylphosphonic acid,

vinylbenzylphosphonic diacid, diethyl 2-(4-vinylphenyl)ethanephosphonate, 2-(acryloyloxy)ethylphosphonic acid dimethyl ester, 2-(methacryloyloxy)ethylphosphonic acid dimethyl ester, 2-(methacryloyloxy)methylphosphonic acid diethyl ester, 2-(methacryloyloxy)methylphosphonic acid dimethyl ester, 2-(methacryloyloxy)propylphosphonic acid dimethyl ester, 2-(acryloyloxy)methylphosphonic acid diisopropyl ester, 2-(acryloyloxy)ethylphosphonic acid diethyl ester, 2-(methacryloyloxy)ethylphosphonic acid, 2-(methacryloyloxy)methylphosphonic acid, 2-(methacryloyloxy)propylphosphonic acid, 2-(acryloyloxy)propylphosphonic acid, 2-(acryloyloxy)ethylphosphonic acid, trimethoxysilylpropyl methacrylate, triethoxysilylpropyl methacrylate, tributoxysilylpropyl methacrylate, dimethoxymethylsilylpropyl methacrylate, diethoxymethylsilylpropyl methacrylate, dibutoxymethylsilylpropyl methacrylate, diisopropoxymethylsilylpropyl methacrylate, dimethoxysilylpropyl methacrylate, diethoxysilylpropyl methacrylate, dibutoxysilylpropyl methacrylate, diisopropoxysilylpropyl methacrylate, trimethoxysilylpropyl methacrylate, triethoxysilylpropyl methacrylate, tributoxysilylpropyl methacrylate, trimethoxysilylpropyl acrylate, triethoxysilylpropyl acrylate, tributoxysilylpropyl acrylate, dimethoxymethylsilylpropyl acrylate, diethoxymethylsilylpropyl acrylate, dibutoxymethylsilylpropyl acrylate, diisopropoxymethylsilylpropyl acrylate, dimethoxysilylpropyl acrylate, diethoxysilylpropyl acrylate, dibutoxysilylpropyl acrylate, diisopropoxysilylpropyl acrylate, trimethoxysilylpropyl acrylate, triethoxysilylpropyl acrylate or tributoxysilylpropyl acrylate.

40. (New) The process as claimed in claim 38, wherein the ethylenically unsaturated monomers are styrene monomers, vinyl esters, neutral or charged hydrophilic acrylates, hydrophobic acrylates, neutral or charged hydrophilic methacrylates, hydrophobic methacrylates, hydrophilic or hydrophobic and neutral or charged acrylamido derivatives, hydrophilic or hydrophobic and neutral or charged methacrylamido derivatives, or their mixtures.

41. (New) The process as claimed in claim 38, wherein a fraction of the ethylenically unsaturated monomers are polyethylenically unsaturated monomers.

42. (New) The process as claimed in claim 41, wherein the polyethylenically unsaturated monomer comprises at least two ethylenic unsaturations and at most 10 ethylenic unsaturations.

43. (New) The process as claimed in claim 41, wherein the polyethylenically unsaturated monomer is an acrylic, methacrylic, acrylamido, methacrylamido, vinyl ester, vinyl ether, diene, styrene, α -methylstyrene or allyl derivatives.

44. (New) The process as claimed in claim 41, wherein the polyethylenically unsaturated monomer additionally presents one or more functional groups other than ethylenic unsaturations selected from the group consisting of the hydroxyl, carboxyl, ester, amide, amino, substituted amino, mercapto, silane, epoxy and halo functional groups.

45. (New) The process as claimed in claim 41, wherein the polyethylenically unsaturated monomer is vinyl methacrylate, methacrylic acid anhydride, allyl methacrylate, ethylene glycol dimethacrylate, phenylene dimethacrylate, diethylene

glycol dimethacrylate, triethylene glycol dimethacrylate, tetraethylene glycol dimethacrylate, polyethylene glycol 200 dimethacrylate, polyethylene glycol 400 dimethacrylate, 1,3-butanediol dimethacrylate, 1,4-butanediol dimethacrylate, 1,6-hexanediol dimethacrylate, 1,12-dodecanediol dimethacrylate, 1,3-glycerol dimethacrylate, diurethane dimethacrylate or trimethylolpropane trimethacrylate; vinyl acrylate, bisphenol A epoxy diacrylate, dipropylene glycol diacrylate, tripropylene glycol diacrylate, polyethylene glycol 600 diacrylate, ethylene glycol diacrylate, diethylene glycol diacrylate, triethylene glycol diacrylate, tetraethylene glycol diacrylate, neopentyl glycol ethoxylate diacrylate, butanediol diacrylate, hexanediol diacrylate, aliphatic urethane diacrylate, trimethylolpropane triacrylate, trimethylolpropane ethoxylate triacrylate, trimethylolpropane propoxylate triacrylate, glycerol propoxylate triacrylate, aliphatic urethane triacrylate, trimethylolpropane tetraacrylate or dipentaerythritol pentaacrylate; vinyl crotonate, diethylene glycol divinyl ether, 1,4-butanediol divinyl ether or triethylene glycol divinyl ether; diallyl phthalate, diallyldimethylammonium chloride, diallyl maleate, sodium diallyloxyacetate, diallylphenylphosphine, diallyl pyrocarbonate, diallyl succinate, N,N'-diallyltartardiamide, N,N-diallyl-2,2,2-trifluoroacetamide, the allyl ester of diallyloxyacetic acid, 1,3-diallylurea, triallylamine, triallyl trimesate, triallyl cyanurate, triallyl trimellitate or 1,3,5-triallyltriazine-2,4,6(1H,3H,5H)-trione; N,N'-methylene-bisacrylamide, N,N'-methylenebismethacrylamide, glyoxalbisacrylamide or diacrylamidoacetic acid; divinylbenzene and 1,3-diisopropenylbenzene; butadiene, chloroprene or isoprene.

46. (New) The process as claimed in claim 41, wherein the polyethylenically unsaturated monomer is N,N'-methylenebisacrylamide, divinylbenzene, ethylene glycol diacrylate or trimethylolpropane triacrylate.
47. (New) The process as claimed in claim 30, wherein the polyethylenically unsaturated monomers present a molar fraction with respect to the monoethylenically unsaturated monomers of between 0.001 and 1.
48. (New) The process as claimed in claim 30, wherein the polymer is in solution in an aqueous or organic solvent, in dispersion in water or a solvent or in an aqueous emulsion (latex).
49. (New) The process as claimed in claim 48, wherein the particle size of the dispersion is between about 10 and about 50 000 nanometers, and the particle size of the aqueous emulsion is between about 10 and about 500 nanometers.
50. (New) The process as claimed in claim 30, wherein the polymer is brought into contact with the ozone countercurrentwise.